## REMARKS

Claims 1-12 are all the claims pending in the application.

In Paragraph 2 at page 2 of the Office Action, the Examiner refers to the trademark "SIROCCO", and requests that it should be capitalized and accompanied by generic terminology.

Applicants respond as follows.

A sirocco fan is well known in the art as an centrifugal having multiple narrow blades curved forward and mounted at a periphery of a brace, open drum. This is not a trademark, it does not need to be capitalized, and generic terminology is unnecessary since this type of fan is very well known.

The Examiner objected to the use of "means-plus-function" language to define features of Applicants' invention, because the specification is said to not clearly identify corresponding structure which performs the function recited in the claimed element.

In response, pursuant to MPEP § 2181, Applicants identify the structure which performs the claim functions as follows:

With respect to the "means for supplying the oxygen-enriched gas at a first flow rate" Applicants identify corresponding structure as the flow rate setting unit 47. See page 22, lines 6-8...(by adjusting an orifice, the continuous base flow rate (first flow rate) can be set within a range up to the continuous base flow rate).

With respect to the "means for supplying the oxygen-enriched gas at a second flow rate" Applicants identify corresponding structure as the combination of the electromagnetic valve 45 and controller 59. See "(2) Breath Synchronization Function" at pages 25-26 (the controller 59

opens and closes the electromagnetic valve 45 such that oxygen-enriched gas is supplied over the inhalation period of each breathing cycle of the patient).

With respect to the claimed "means for establishing a continuous base flow rate", Applicants identify the corresponding structure as the flow rate setting unit 47.

For the claimed "means for detecting the state of inhalation or exhalation...and for controlling supply of the oxygen-enriched gas based on a signal output from the sensor", Applicants identify the corresponding structure as the controller 59. See page 28, line 20 to page 29, line 9 (...the controller 59 performs processing for obtaining the pressure in the vicinity of the oxygen outlet 49...on the basis of the signal from the pressure sensor 55...and controls (i.e., opens and closes) the electromagnetic valve 45).

For the claimed "means for determining a timing for starting or ending supply...based on the sensor signal", Applicants identify the corresponding structure as the controller 59. See, e.g., page 29, lines 13-21...on the basis of the result of detection performed by the pressure sensor 55, the controller 59 judges whether inhalation has started and opens or closes the electromagnetic valve 45 based on the judgement).

For the claimed "means for detecting the state of inhalation or exhalation one time or plurality of number of times...and for determining the timing for starting or ending subsequent supply of the oxygen-enriched gas", Applicants identify the corresponding structure as controller 59. See page 30, line 4-8.

It is respectfully submitted that the structure corresponding to the means-plus-function claim limitations is clear to those skilled in the art, and that amendment of the specification is unnecessary. Withdrawal of the objection to the specification is respectfully requested.

In response to the objection to claim 2 (as to the language "representing a flow rate"), the claims have been amended to more clearly recite that the continuous flow rate is a flow rate at which the oxygen enriching apparatus can supply the oxygen-enriched gas continuously. It is believed that the objection to claims 3, 9 and 10 is in error.

Withdrawal of the objection is respectfully requested.

It is submitted that the claims as amended fully comply with 35 U.S.C. § 112, and further, that the specification clearly sets forth structure corresponding to the means-plus-function claim limitations to those skilled in the art.

Claims 1-5 and 10-12 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,706,664 to Snook et al. Snook et al was cited as disclosing a supplemental oxygen apparatus that includes means for supplying oxygen-enriched gas either intermittently in conjunction with a patient's breathing cycle or continuously.

Applicants respectfully traverse for the following reasons.

A characteristic feature of the invention is that the apparatus can supply oxygen-enriched gas at a flow rate higher than the continuous base flow rate when needed during the inhalation period. As a result, the apparatus can be made more compact. This is accomplished by a breath synchronization function in which the oxygen-function enriched gas in one embodiment is not supplied to the user during the exhalation period, and in which the oxygen-enriched gas is

supplied at a second flow rate greater than the continuous base flow rate over an inhalation period having a length 25 to 40% that of a breathing cycle. To emphasize that the oxygen-enriched gas is supplied over a time period that is 25 to 40% that of a breathing cycle, claim 1 has been amended to substitute the word "over" for "during". Support is found, for example, at page 8, lines 16-19 of the specification. See also the breathing cycle pattern model shown in Fig. 3, where oxygen is supplied over the inhalation period which has a length of 1/3 that of the breathing cycle.

During the exhalation period, the oxygen-enriched gas produced by the nitrogen absorption process is accumulated in one or more product tanks. Thus, during the inhalation period, the accumulated oxygen-enriched gas, in addition to the oxygen-enriched gas produced by the nitrogen absorption process, is available to be supplied to the user at a flow rate greater than the continuous flow rate. That is, the oxygen-enriching apparatus can be lightweight and have a small volume (for example, a 2 to 3 liter model), while being capable of supplying oxygen-enriched gas at a higher flow rate when necessary (up to three times the continuous flow rate capacity). In other words, if the oxygen enriching apparatus has a supply capacity of 2 liters/min., theoretically, the oxygen enriching apparatus can increase the flow rate up to 6 liters/min. Such a supply of oxygen-enriched gas in accordance with the invention approximates that of a continuous flow-type to the extent possible such that the patient hardly feels that something is wrong. As a result, the oxygen-enriching apparatus can maintain compactness, low electrical power consumption and low noise of a lower-rated model, to thereby provide many advantages to both patient and care givers (page 5, lines 16-21 of the specification).

Turning to the cited prior art, Snook et al discloses a dual flow rate device for supplying pulse volumes of gas to the patient from time to time during the patient's breathing cycles, or supplying a continuous flow of gas at a lower, predetermined prescribed flow rate during abnormal or upset conditions (column 2, lines 38-40 and column 3, lines 25-32). Particularly, when the demand valve in the apparatus of Snook et al is opened to deliver a pulse of gas, the excess pressure is quickly released to give a desired, high peak rate pulse of gas to the patient (column 3, lines 40-43). Particularly, the gas pulses designed for delivery to the patient at the very early stages of inspiration during each breathing cycle (column 3, lines 65-68) are diagrammatically shown in the timing chart of Fig. 13. Fig. 13 shows a breathing cycle including an inhalation period and an exhalation period. The gas pulse, in either the home or hospital mode, is delivered at the beginning of inspiration, and is quickly turned off. The pulse duration, in either mode, is less than 0.5 seconds of a three second breathing cycle. That is, the gas pulse is delivered over a period of roughly 15% (or less) of a breathing cycle.

The difference between the invention and Snook et al is clearly seen by comparing the timing chart of Fig. 3 of the specification with that of Fig. 13 of Snook et al. Whereas oxygen-enriched gas is supplied in accordance with the invention over an inhalation period having a length 25 to 40% that of a breathing cycle, the gas pulse in Snook et al is delivered over a much shorter period. Therefore, Snook et al does not meet each and every term of the present claims which require supplying oxygen-enriched gas at a second flow rate greater than a continuous

base flow rate over an inhalation period having a length 25 to 40% that of a breathing cycle.[1] For the same reasons, it is respectfully submitted that the present claims are not anticipated by Snook et al, and withdrawal of the foregoing rejection under 35 U.S.C. § 102(b) is respectfully requested.

Applicants further comment on Snook et al as follows.

The object of Snook et al is to save substantial quantities of medicinal gas, as compared with the conventional and time-honored approach of simply supplying a continuous stream of gas to the patient (column 1, lines 11-16). This is accomplished by delivering high flow rate, short time pulses of oxygen at precisely timed intervals during the patient's breathing cycle, which are designed to be essentially the physiological equivalent of delivery of relatively low rates of gas to the patient on a continuous basis (column 6, lines 39-45). On the other hand, the present invention seeks an entirely different objective, namely, to approximate a continuous-flow type apparatus to the extent possible such that the patient hardly feels that something is wrong, thereby resulting in an oxygen enriching apparatus which can maintain compactness, low electrical power consumption and low noise of a lower-rated model. In any event, one of ordinary skill would not be motivated to modify the pulse delivery of Snook et al so as to supply oxygen over an inhalation period having length 25 to 40% that of a breathing cycle, as this would

[1] More particularly, Snook et al does not perform the claimed function of the "means for supplying the oxygen-enriched gas at a second flow rate greater than the continuous base flow rate over an inhalation period having a length 25 to 40% that of a breathing cycle ... " Application of a prior art reference to the subject means-plus-function limitation of claim 11 requires that the prior art element perform the identical function specified in the claim. MPEP §2182.

destroy the intended purpose of the "INSPIRATION OXYGEN SAVER" of Snook et al (Title of the Snook et al patent).

Claims 6-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Snook et al in view of U.S. Patent 6,237,594 to Davenport. Davenport was cited as disclosing an oxygen supply device having a number of tanks allowing for delivery of a broad range of flow without negatively impacting performance of the valves and sensors, citing column 5, lines 60-68.

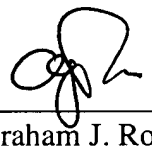
Applicants rely on the response above with respect to the rejection over Snook et al alone. Davenport does not make up for the deficiencies of Snook et al as to supply of an oxygen-enriched gas at a flow rate greater than a continuous base flow rate over an inhalation period having a length 25 to 40% that of a breathing cycle.

Withdrawal of the foregoing rejection under 35 U.S.C. § 103(a) is respectfully requested.

Withdrawal of all rejections and allowance of claims 1-12 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

Respectfully submitted,



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